

### Listing of Claims

Please amend the claims as follows. This listing of claims will replace all prior versions and listings of claims in the application:

1 – 28. Canceled.

29. (New) An organic electroluminescent device comprising in sequence, an anode, a layer of an electroluminescent material, and a cathode, in which the electroluminescent material is selected from compounds of the general chemical formula

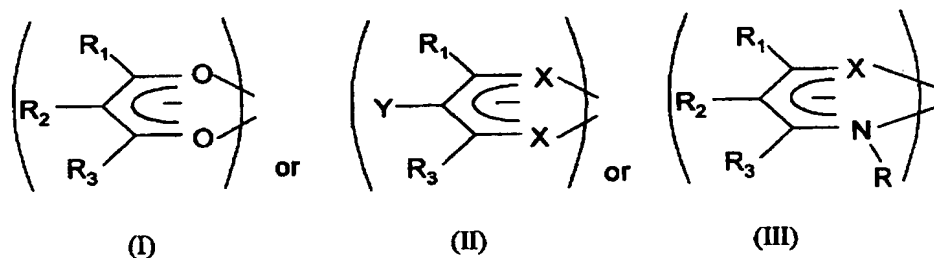
(A)  $M(L\alpha)_n$ ,



$(L_n)_n M_1 M_2$ , and

$(L_n)_n M_1 M_2 (L_p)$

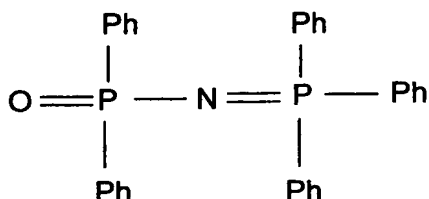
where  $L\alpha$  is selected from organic ligands and from compounds of formula:-



where  $R_1$ ,  $R_2$  and  $R_3$  can be the same or different and are selected from hydrogen, and substituted and unsubstituted hydrocarbyl groups, substituted and unsubstituted aliphatic groups, substituted and unsubstituted aromatic, heterocyclic and polycyclic ring structures, fluorocarbons, trifluoromethyl groups, halogens and thiophenyl groups;  $R_1$ ,  $R_2$  and  $R_3$  can also form substituted and unsubstituted fused aromatic, heterocyclic and polycyclic ring structures and can be copolymerisable with a monomer; X is Se, S or O; Y is selected from hydrogen, substituted or unsubstituted

hydrocarbonyl groups, substituted and unsubstituted aromatic, heterocyclic and polycyclic ring structures, fluorine, fluorocarbons such as trifluoromethyl groups, halogens, thiophenyl groups and nitrile and the ligands  $L_n$  and  $L_\alpha$  are the same or different;

$L_p$  is a neutral organic ligand, or is of formula

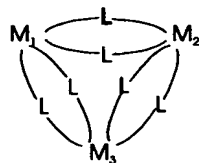
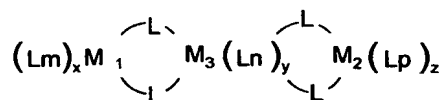
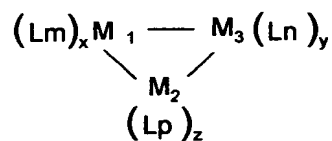
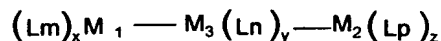


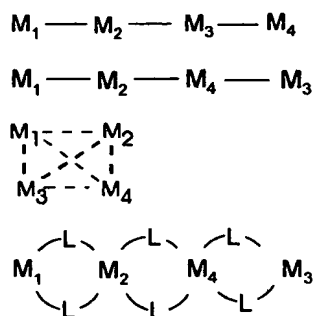
where each Ph which can be the same or different and can be a phenyl (OPNP) or a substituted phenyl group, other substituted or unsubstituted aromatic group, a substituted or unsubstituted heterocyclic or polycyclic group, a substituted or unsubstituted fused aromatic group such as a naphthyl, anthracene, phenanthrene or pyrene group;

$M$  and  $M_1$  are a rare earth, transition metal, lanthanide or an actinide,  $M_2$  is a non rare earth rare earth, transition metal, lanthanide or an actinide metal and

$n$  is the combined valence state of  $M$ ,  $M_1$  and  $M_2$

or from compounds of the general chemical formula





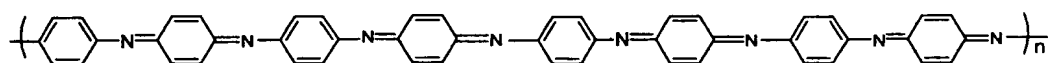
where L is a bridging ligand and where  $M_1$  and  $M_3$  are selected from a rare earth, transition metal, lanthanide or an actinide,  $M_2$  is a non rare earth metals and  $M_4$  is  $M_1$ ;

$L_m$ ,  $L_p$  and  $L_n$  are the same or different organic ligands or are  $L_a$ , as defined above,  $x$  is the valence state of  $M_1$ ,  $y$  is the valence state of  $M_2$ , and  $z$  is the valence state of  $M_3$  and in which the rare earth metals and the non rare earth metals can be joined together by a metal to metal bond and/or via an intermediate bridging atom, ligand or molecular group or in which there are more than three metals joined by metal to metal bonds and/or via intermediate ligands and there is located in the electroluminescent layer as a fluorescent material a dye capable of emitting light in response to hole-electron recombination.

30. (New) An electroluminescent device according to claim 29 in which  $M_2$  is selected from lithium, sodium, potassium, rubidium, caesium, beryllium, magnesium, calcium, strontium, barium, copper (I), copper (II), silver, gold, zinc, cadmium, boron, aluminium, gallium, indium, germanium, tin (II), tin (IV), antimony (II), antimony (IV), lead (II), lead (IV) and metals of the first, second and third groups of transition metals in different valence states, manganese, iron, ruthenium, osmium, cobalt, nickel, palladium(II), palladium(IV), platinum(II), platinum(IV), cadmium, chromium, titanium, vanadium, zirconium, tantalum, molybdenum, rhodium, iridium, titanium, niobium, scandium and yttrium.

31. (New) An electroluminescent device according to claim 29 in which there is an organic hole transporting material in contact with or mixed with the layer of the electroluminescent material.

32. (New) An electroluminescent device according to claim 31 in which the hole transmitting material is a film of a polymer selected from poly(vinylcarbazole), N,N'-diphenyl-N,N'-bis (3-methylphenyl) -1,1' -biphenyl -4,4'-diamine (TPD), polyaniline, substituted polyanilines, polythiophenes, substituted polythiophenes, polysilanes, substituted polysilanes, compounds of formula



where n is from 1 to 20.

33. (New) An electroluminescent device according to claim 29 in which there is a layer of an electron transmitting material between the cathode and the electroluminescent material layer or mixed with the electroluminescent material.

34. (New) An electroluminescent device according to claim 33 in which the electron transmitting material is a metal quinolate, an aluminium quinolate or lithium quinolate, cyanoanthracenes such as 9,10 dicyanoanthracenes, polystyrene sulphonates.

35. (New) An electroluminescent device according to claim 29 in which the cathode is selected from aluminium, calcium, lithium, silver/magnesium alloys.

36. (New) An electroluminescent device according to claim 31 in which the cathode is selected from aluminium, calcium, lithium, silver/magnesium alloys.

37. (New) An electroluminescent device according to claim 34 in which the cathode is selected from aluminium, calcium, lithium, silver/magnesium alloys.

38. (New) An electroluminescent device according to claim 29 in which the fluorescent material is a dye which has a bandgap no greater than that of the electroluminescent material and a reduction potential less negative than that of the electroluminescent material.

39. (New) An electroluminescent device according to claim 29 in which the electroluminescent material is capable of emitting light of a first wavelength in the absence of said fluorescent material and said fluorescent material is capable of absorbing light at the first wavelength.

40. (New) An electroluminescent device according to claim 38 in which the fluorescent material is a blue emitting dye.

41. (New) An electroluminescent device according to claim 38 in which the fluorescent material is a dye which exhibits a shorter wavelength emission peak than the electroluminescent material.

42. (New) An electroluminescent device according to claim 29 in which the fluorescent material is a dye which is present in the layer of the electroluminescent material in a concentration ranging from about 0.05 to 5 mole percent.

43. (New) An electroluminescent device according to claim 38 in which the fluorescent material is a dye which is present in the layer of the electroluminescent material in a concentration ranging from about 0.05 to 5 mole percent.

44. (New) An organic electroluminescent device comprising in sequence, an anode, a layer of a hole transporting material, a layer of an electroluminescent material, a layer of an electron transmitting material, and a cathode, in which the electroluminescent material is selected from compounds of the general chemical

formula

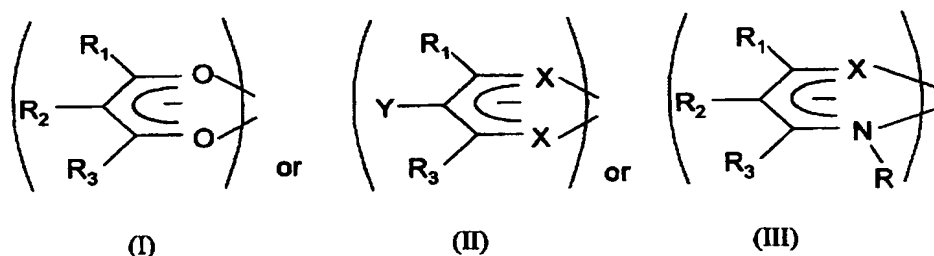
(A)  $M(L\alpha)_n$ ,



$(L_n)_n M_1 M_2$ , and

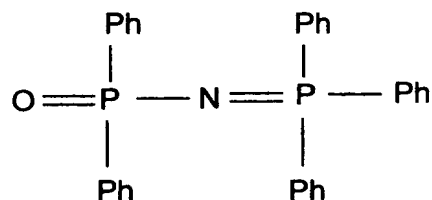
$(L_n)_n M_1 M_2 (L_p)$

where  $L\alpha$  is selected from organic ligands and from compounds of formula:-



where  $R_1$ ,  $R_2$  and  $R_3$  can be the same or different and are selected from hydrogen, and substituted and unsubstituted hydrocarbyl groups, substituted and unsubstituted aliphatic groups, substituted and unsubstituted aromatic, heterocyclic and polycyclic ring structures, fluorocarbons, trifluoromethyl groups, halogens and thiophenyl groups;  $R_1$ ,  $R_2$  and  $R_3$  can also form substituted and unsubstituted fused aromatic, heterocyclic and polycyclic ring structures and can be copolymerisable with a monomer;  $X$  is Se, S or O;  $Y$  is selected from hydrogen, substituted or unsubstituted hydrocarbyl groups, substituted and unsubstituted aromatic, heterocyclic and polycyclic ring structures, fluorine, fluorocarbons such as trifluoromethyl groups, halogens, thiophenyl groups and nitrile and the ligands  $L_n$  and  $L\alpha$  are the same or different;

$L_p$  is a neutral organic ligand, or is of formula

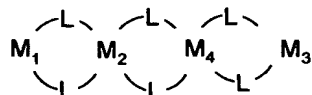
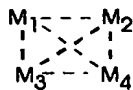
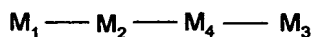
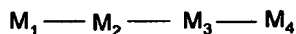
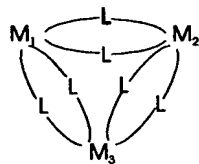
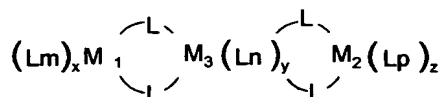
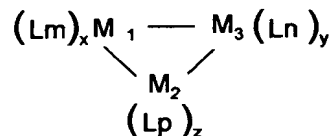
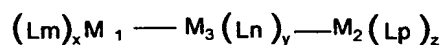


where each Ph which can be the same or different and can be a phenyl (OPNP) or a substituted phenyl group, other substituted or unsubstituted aromatic group, a substituted or unsubstituted heterocyclic or polycyclic group, a substituted or unsubstituted fused aromatic group such as a naphthyl, anthracene, phenanthrene or pyrene group;

M and M<sub>1</sub> are a rare earth, transition metal, lanthanide or an actinide, M<sub>2</sub> is a non rare earth rare earth, transition metal, lanthanide or an actinide metal and

n is the combined valence state of M, M<sub>1</sub> and M<sub>2</sub>

or from compounds of the general chemical formula



where L is a bridging ligand and where M<sub>1</sub> and M<sub>3</sub> are selected from a rare earth, transition metal, lanthanide or an actinide, M<sub>2</sub> is a non rare earth metals and M<sub>4</sub> is M<sub>1</sub>;

Lm, Lp and Ln are the same or different organic ligands or are La, as defined above,

x is the valence state of  $M_1$ , y is the valence state of  $M_2$ , and z is the valence state of  $M_3$  and in which the rare earth metals and the non rare earth metals can be joined together by a metal to metal bond and/or via an intermediate bridging atom, ligand or molecular group or in which there are more than three metals joined by metal to metal bonds and/or via intermediate ligands and there is located in the electroluminescent layer as a fluorescent material a dye capable of emitting light in response to hole-electron recombination.

45. (New) An electroluminescent device according to claim 44 in which the fluorescent material is a dye which is selected from the group consisting of coumarin, dicyanomethylenepyrans and thiopyrans, polymethine, oxabenzanthracene, xanthene, pyrylium and thiapyrylium, carbostyryl, and perylene fluorescent dyes.

46. (New) An electroluminescent device according to claim 44 in which the electroluminescent material is capable of emitting light of a first wavelength in the absence of said fluorescent material and said fluorescent material is capable of absorbing light at the first wavelength.

47. (New) An electroluminescent device according to claim 46 in which the fluorescent material is a dye which is a blue emitting dye.

48. (New) An electroluminescent device according to claim 44 in which the fluorescent material is a dye which exhibits a shorter wavelength emission peak than the electroluminescent material.

49. (New) An electroluminescent device according to claim 44 in which the fluorescent material is a dye which is present in the layer of the electroluminescent material in a concentration ranging from about 0.05 to 5 mole percent.